

ABSTRACT

A balancing vertical load device for a motor, to be used in conjunction with a vertical driving device with a force- and position-controlled motor, comprising a motor assembly and a sealed air pressure system. The motor assembly has a motor, and a load weight which, driven by the motor, performs a vertical movement. The sealed air pressure system has an air cylinder, a piston, gliding inside the air cylinder with low friction and being connected with the load weight, an air container, storing a relatively large air volume, and an air pressure source. The sealed air pressure system balances a load of the load weight, so that precise control of force and position of a vertically moving object, as if moving horizontally, is achieved.